# WRIGHT PATTERSON AFB 2011 DRINKING WATER QUALITY REPORT

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WHO TO CONTACT

**Bioenvironmental Engineering**

- Customer Service 255-6815
- Water Program Mgr. 904-8335

**Civil Engineering**

- Customer Service 257-3131
- Water Utilities 257-1928
- Asset Management Div. 257-9009

**USEPA**

- Safe Drinking Water Hotline (800) 426-4791

## WPAFB Meeting Water Quality Standards!

In order to comply with the 1996 Safe Drinking Water Act (SDWA) amendments, each year Wright-Patterson Air Force Base (WPAFB) prepares a Consumer Confidence Report to provide information to you, the consumer, on the quality of our drinking water. Included within this report is information about the origin of our source water, water quality test results, general health information and how to participate in decisions concerning your drinking water. We are pleased to report that WPAFB continued to meet and/or exceed all Federal and State drinking water health standards for calendar year 2011. We will continue to make every effort to ensure the delivery of clean, safe water for our customers.

## WPAFB Source Water

The source of WPAFB's drinking water is the Great Miami Buried Valley Aquifer. This aquifer is a large underground area of water-bearing sand and gravel deposits.

WPAFB has a current, unconditional license to operate two community public water systems supplied by this groundwater aquifer. This natural aquifer provides WPAFB with approximately 1 billion gallons of water each year. There are six wells that serve Area A and four wells that serve Area B. Each well system has its own individual treatment process. Treatment includes air stripping to remove volatile organic chemicals (VOCs), chlorine disinfection to eliminate bacteria, and fluoridation which promotes strong teeth. Housing residents receive water which has also been softened.

The Prairies housing residents receive their water from Montgomery County. Those residents will receive their consumer information from the Montgomery County Sanitary Engineering Department.

In 2007, the Ohio Environmental Protection Agency (OEPA) completed a study of the WPAFB's source of drinking water to identify potential contaminant sources and provide guidance on protecting the drinking water source. According to this study, the aquifer that supplies water to WPAFB Areas A and B well fields has a high susceptibility to contamination. This determination is based on the following: the lack of a protective layer of clay or other material overlying the aquifer, a shallow depth (between 5-15 feet below ground surface) of the aquifer, the presence of significant potential contaminant sources in the protection areas, and the presence of manmade contaminants in the ground water. Tetrachloroethene was detected within the treated water above the maximum contaminant level (MCL) on 1/10/91, 4/03/91, 5/01/91, and 6/04/91. WPAFB upgraded the treatment systems in 1992. Since that time, all results have been under the MCL for Tetrachloroethene in the treated water. Nitrate was also detected in the treated water above the aquifer susceptibility concentration of concern of 2.0 mg/L on several occasions. The MCL for nitrate is 10.0 mg/L.

The risk of future contamination can be minimized by implementing appropriate protective measures. WPAFB has an endorsed OEPA Source Water Protection Area and Potential Contaminant Source Inventory (PCSI). For more information about the source water assessment or what consumers can do to help protect the aquifer, contact the WPAFB Asset Management Division at 257-9009.

## What are sources of contamination to drinking water?

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include: **(A)** ***Microbial contaminants,*** such as viruses and bacteria, may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; **(B)** ***Inorganic contaminants,*** such as salts and metals, which can be naturally occurring or result from urban storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming; **(C)** ***Pesticides and herbicides,*** which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses; **(D)** ***Organic chemical contaminants,*** including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems; **(E)** ***Radioactive contaminants,*** which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that your tap water is safe to drink, the US EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk.

More information about contaminants and their potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (1-800-426-4791).

## Who needs to take special precautions?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk to infections. These people should seek advice about drinking water from their health care providers. USEPA and Center for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at (1-800-426-4791).

## About your drinking water

WPAFB routinely monitors for contaminants in your drinking water according to federal and state laws. In fact, we perform many more tests than are required to ensure safe, quality water. Bioenvironmental Engineering personnel conducted sampling for coliform bacteria, VOCs, radiologicals, nitrates, nitrites, asbestos, and disinfection byproduct contaminants during calendar year 2011. The table on page 3 lists the drinking water contaminants that were detected in CY 2011.

The State of Ohio requires monitoring for some contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Therefore, some of the data in the table is more than one year old.

Below are some abbreviations and definitions to help you better understand the results reported in the table.

***Abbreviations Used:***

***n/a:*** *Not Applicable*
***ND:*** *Not Detected*
***SDWA****: Safe Drinking Water Act*
***CY:*** *Calendar Year*

***Definitions Used:***

- ***Parts Per Million (ppm)*** *are units of measure for concentration of a contaminant. A ppm corresponds to one second in approx. 11.5 days.*
- ***Parts Per Billion (ppb)*** *are units of measure for concentration of a contaminant. A ppb corresponds to one second in 31.7 years.*
- ***Picocuries per liter (pCi/L):*** *A common measure of radioactivity.*
- ***Million Fibers per liter (MFL):*** *A measure of the presence of asbestos fibers that are longer than 10 micrometers*
- ***Maximum Contaminant Level Goal (MCLG):*** *The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.*
- ***Maximum Contaminant Level (MCL):*** *The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.*
- ***Action Level (AL)****: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.*
- ***Maximum Residual Disinfectant Level (MRDL):*** *The highest residual disinfectant level allowed.*
- ***Maximum Residual Disinfectant Level Goal (MRDLG):*** *The level of residual disinfectant below which there is no known or expected risk to health.*

| Inorganic Contaminants | Unit of Measure | MCLG | MCL | Area A Level Found Detected | Area B Level Found Detected | Area A Range | Area B Range | Violation | Possible sources of contamination |
|---|---|---|---|---|---|---|---|---|---|
| Asbestos | MFL | 7 | 7 | 0.17 | 0.17 | n/a | n/a | No | Decay of asbestos cement water mains; Erosion of natural deposits |
| Barium | ppm | 2 | 2 | 0.14 | 0.12 | 0.04- 0.14 | 0.02- 0.12 | No | Discharges of drilling wastes; discharge from metal refineries; erosion of natural deposits |
| Copper *CY2009 | ppm | 1.3 | AL=1.3 | 90th Percentile 0.592 | 90th Percentile 0.709 | 0.013 - 0.707 | 0.021- 1.39 | No | Erosion of natural deposits |
| Zero out of thirty samples had copper levels in excess of the Action Level of 1.3 ppm in Area A. One out of forty samples had copper levels in excess of the Action Level of 1.3 ppm in Area B. The SDWA states that 90% of samples must be below the action level. WPAFB is in compliance with this standard. | | | | | | | | | |
| Lead *CY2009 | ppb | 0 | AL=15 | 90th Percentile 4.81 | 90th Percentile 11.6 | ND - 21.5 | ND - 304 | No | Corrosion of household plumbing systems |
| Two out of thirty samples had Lead levels in excess of the Action Level of 15 ppb in Area A. Four out of forty samples had Lead levels in excess of the Action Level of 15 ppb in Area B. The SDWA states 90% of samples must be below the action level. WPAFB is in compliance with this standard. | | | | | | | | | |
| Nitrate | ppm | 10 | 10 | 2.04 | 1.78 | 1.89-2.04 | 1.77-1.78 | No | Runoff from fertilizer use; leaching from septic tanks, sewage; erosion from natural deposits |
| Fluoride | ppm | 4 | 4 | Highest monthly avg. 1.1 | Highest monthly avg. 1.1 | 0.2- 1.4 | 0.2-1.3 | No | Water additive which promotes strong teeth; discharge from fertilizer and aluminum factories |
| **Residual Disinfectants** | **Unit of Measure** | **MRDL** | **MRDLG** | **Area A Level Found High Qtr Avg** | **Area B Level Found High Qtr Avg** | **Area A Range Month Avg** | **Area B Range Month Avg** | **Violation** | **Possible sources of contamination** |
| Total Chlorine | ppm | 4 | 4 | 1.15 | 1.13 | 0.5 - 1.9 | 0.5 - 1.8 | No | Water additive used to control microbes |
| **Radioactive Contaminants** | **Unit of Measure** | **MCLG** | **MCL** | **Area A Level Found** | **Area B Level Found** | **Area A Range** | **Area B Range** | **Violation** | **Possible sources of contamination** |
| Radium 228 | (pCi/L) | 0 | 5 | 1.78 | ND | n/a | n/a | No | Erosion of natural deposits |
| **Volatile Organic Chemicals** | **Unit of Measure** | **MCLG** | **MCL** | **Area A Level Found** | **Area B Level Found** | **Area A Range** | **Area B Range** | **Violation** | **Possible sources of contamination** |
| TTHMs Total Trihalomethanes | ppb | n/a | 80 | 17.29 | 13.22 | 6.99-17.29 | n/a | No | By-product of drinking water chlorination |
| HAA5 Total Haloacetic Acids | ppb | n/a | 60 | 3.62 | 2.37 | 1.7-3.62 | n/a | No | By-product of drinking water chlorination |
| **Unregulated Contaminants** | **Unit of Measure** | **MCLG** | **MCL** | **Area A Level Found** | **Area B Level Found** | **Area A Range** | **Area B Range** | **Violation** | **Possible sources of contamination** |
| Bromodichloromethane | ppb | n/a | n/a | 7.36 | 3.45 | 0.73-7.36 | 0.85-3.45 | No | By-product of drinking water chlorination |
| Bromoform | ppb | n/a | n/a | 1.27 | 1.24 | 0.75-1.27 | 1-1.24 | No | |
| Chloroform | ppb | n/a | n/a | 20.1 | 3.92 | 0.81-20.1 | n/a | No | |
| Dibromochloromethane | ppb | n/a | n/a | 4.35 | 3.94 | 1.06-4.35 | 1.89-3.94 | No | |

*** Indicates data that is more than one year old**

# Lead Educational Information

You may have noticed that one location in Area B had an elevated lead level of 304 ppb. Although this location exceeded the action level for lead, we continued to be in compliance with the SDWA standard for the 90th percentile, meaning that 90% of all samples collected were below the SDWA action level of 15 ppb. As a precautionary measure, follow up sampling was conducted at that location and results showed levels below the detection limit. Though we cannot explain why the initial sample had an elevated lead level, follow up samples indicated no problems within the distribution system or within the water lines in the building.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Infants and young children are typically more vulnerable to lead in drinking water than the general population. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. WPAFB is responsible for providing high quality drinking water, but cannot control the variety of material used in plumbing components. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. A list of laboratories certified in the State of Ohio to test for lead, as well as information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (800-426-4791) or at USEPA's web site: **http://www.epa.gov/safewater/lead.**

# WPAFB is a Groundwater Guardian Community

Groundwater Guardian is a community-based program sponsored by the Groundwater Foundation. Through Groundwater Guardian, communities bring business, government, educators, and citizens together to work on the common goal of groundwater protection. Since 1995, WPAFB has received the Groundwater Guardian Award in partnership with the City of Dayton and its source water protection program, which is still ongoing!

# Opportunities to Participate

The WPAFB Environmental Advisory Board meets on a quarterly basis at the Public Library in the City of Fairborn to discuss ongoing Base environmental efforts. Representatives from WPAFB, Ohio EPA, City of Dayton, City of Fairborn, community stakeholders and other regulatory agencies participate in the meetings. Public participation and comment is encouraged. The meetings are usually held the 3rd Wed of Feb, May, Aug, and Nov, at 6:00 p.m. If interested, call the WPAFB Asset Management Division at 257-5627 to verify meeting time and date.

# Frequently Asked Questions

## What is the difference between a "Precautionary Boil Water Advisory" and a "Boil Water Notice"?

A **Precautionary Boil Water Advisory** is a public statement advising customers to boil tap water before consuming it. Precautionary advisories are issued when an event has occurred allowing the possibility for the water distribution system to become contaminated such as a loss in pressure or a water main break. A precautionary advisory does not mean that the water is contaminated, but rather that it could be contaminated; because the water quality is unknown, customers should assume the water is unsafe to drink and take appropriate precautions.

A **Boil Water Notice** is issued when contamination is **confirmed** in the water system through water testing.

When an advisory or notice is issued, water testing requirements are initiated immediately by Bioenvironmental Engineering personnel; testing continues until the system can reliably demonstrate that it is free of problems.

During a Precautionary Advisory or Boil Water Notice, customers need to boil their tap water **vigorously for one full minute** prior to using it for drinking or cooking until the advisory is lifted.

For additional information on boil water advisories and notices, contact Bioenvironmental Engineering at 937-904-8335.

## Why does the water sometimes look rusty?

Rusty or reddish tinted water may occur because of a sudden change in pressure due to flushing of a fire hydrant, etc. Iron causes the discoloration and it is not a health risk. The normal flow of water will usually clear the mains within two hours or less. Check your water by flushing a commode three times every 15 to 20 minutes. If you live near the end of a long, main distribution line, additional flushing may be required. Running the water will usually clear the piping system.

## How does WPAFB ensure the delivery of safe, high quality water to their customers?

WPAFB has a variety of programs in place to protect public health and to ensure the delivery of safe, high quality water. These programs include hydrant flushing, backflow prevention, continuous water quality monitoring and water treatment, wellhead protection, and water vulnerability studies.

**For more information** about WPAFB drinking water, or for questions regarding the information contained in the Table, contact Bioenvironmental Engineering, Drinking Water Program Manager at 904-8335 or CE Water Utilities Manager at 257-1928. This report is available on the following web sites:

**http://www.wpafb.af.mil/library/factsheets/factsheet.asp?id=6682**
**https://www.bio.wpafb.af.mil/**